Notebook Series -- Notebooks by Edison and Other Experimenters
Recorder and Recording Experiments -- A. M. Kennedy Books
Notebook, N-15-06-04.2

This notebook is a continuation of N-15-03-17. It was used by Absalom M. Kennedy during June-August 1915 as a daily record of experiments and tests with phonograph recorders. The daily record is continued in N-15-08-02.2. The tests involve various recording machine parts, instruments, and positions of the recording horn. Some entries mention tests of the kinetophone, the "chronograph" and the "kinetophonograph," along with the storage battery search light. Also included are references to Kennedy's collaboration with Newman H. Holland and an experimenter named Taylor (probably Henry A. Taylor) on an Amberola home recording machine and his work for Miller Reese Hutchison on a microphone system. Kennedy's notes also describe other projects such as the preparation of a "talking picture show" for the Commissioners of the Chinese Republic and the training of Diamond Disc demonstrators, and they document Edison's own involvement in the phonograph experiments, including his comments, suggestions, and further instructions. Other individuals involved in the work include F. C. Burt, John P. Constable, Zachariah P. Halpin, Clarence B. Hayes, Archie D. Hoffman, John J. Riley, R. H. Simpson, and George J. Werner. Some of the tests and demonstrations were done on orders from Hutchison. The front cover is labeled "Recording Experiments Book #3. From June 4, 1915. To Aug. 2, 1915. Kennedy." The pages are unnumbered. Approximately 120 pages have been used.

6/4/15.

Finished up and tested out first model of chronograph.

Works well except the leads. These will have to be of different colors and colored leads will be difficult to obtain. Will try steel points two different shapes to engrave the paper in place of marking points.

The attachment will be redesigned to make better looking and more compact.

Saw to getting Kinetophonograph put in shape. (Governor was drunken) and synchronized with projection machine. Also projection machine with new take up & synchronizer combined & bracket put on.

Saw to getting outfit sent to Office Bldg.

Saw Simpson about .008" sapphires.

Changed # 59 recorder with cork discs on top. Unfortunately punctured diaphragm before test & found on test.

Quartette game. Made 3 or 4 good records. #61 recorder seems to stand out better & more natural than #74.

Found that 3 horns record better than 9 - being clearer and more distinct, especially for the baritone and alto.

Found that #54 recorder is badly buried - muffled and not good.

Found that #51 reader had stretched so it will be too sensitive. We have to watch these readers.

Made up reard for test #61 against #74 announced "Reader A" and "Reader B".

Reader A = #74.
" B = #61.

6/5/15.

Saw about getting telephone outfit, cygnet horn synchronizing outfit etc in office Bldg.

Saw Mr P.A. about prepaired paper for chronograph records.

Made #59 recorder over & tested out. Taylor pronounced it very good.

Got 3 - .008" sapphires from Werner.

Afternoon

Changed #60 recorder from 2 min to 4 min, & tested. Sounds buried, too much surface & little cavity

① As loud as #74. Holds better. Plants out unc. Full natural. Gives rather a dull quality. Good for voice test.

#59. 6/5/15.

Brass Head - Domed Top 1¼" diameter.

Diaphragm of celluloid nitrate (old film stock) from solution in amyl acetate.

① Cork cone inside 1" x 1/8" shaped to fit dome. Cork cone outside 1" x 1/8" same as above. Steel arm, no foot. To small piece of aluminum on top of outside cork cone. Regular sapphire.

6/7/15.

Saw about Kinetophone show tomorrow. Got records.

Made up 4 min recorder #57. This tested out very good - full round natural, stands out well.
Reset recorder #60 & tested out much better. Little sharper than #57 & does not hold quite as well but good definition.

① Very full. Holds fine. Pedals very good. Voice little muffled.

6/11/15
Tested this recorder out with Jeanette. Held but was not clear, clean, distinct. Very full & ~~Beethoven~~ loud.

① Tested by Geo. Werner Voice ~~lead~~. Little louder than 60 & former, Not as clear & clean as should be

① Tested by Miss Ingram singing. Holds well but does not show up clear & distinct.

6/7/15
#57 - 4 min
Brass head Domed Top 1¼" diameter. Knife edge pattern.

Diaphragm of nitro cellulose ~~fold film stock~~ from solution in amyl acetate .0015"

① Cork Cone shaped to fit head 1"x⅞" on inside. .008" sapphire in aluminum. Regular arm, large foot.

(1) Sharper than #57 More surface. Does not stand out as well.

(2) Sharper than #57 but not as sharp as (1). Stands out better - more clear. Does not hold as well as #57.

6/11/15

Tested out first with Mr. Werner on diaphragm. Was too sensative. Not clear & distinct.

(3) About same as above

(3) Tested by Geo Werner, Jazz Fair. Full natural Tone but not clear

(3) Tested by Miss Ingrid Sing. Not as loud as 57 but little clearer. Fair.

(3) Quartette - not clear. Halos well but lacks definitions & clearness.

6/7/15

#60 Linkin.

Brass Head, Domed Top. 17" diameter, Knifedge pattern.

Diaphragm of nitrocellulose (old film stock) from solution in amyl acetate .002"

(1) Cork Cone shaped to fit dome of head, waxed to inside of diaphragm. .008" sapphire, regular arm, large foot

(2) Reset needle flatter.

(3) Tightened diaphragm.

6/8/15

All day getting ready & running taking picture show for commission of the Chinese Republic.

C17J

6/9/15.

Saw to fixing out starter and lamp for Kinetoscope installation in Office Bldg.

Tested out the following recorders:
4 min recorders

#57 - On voice too full & sensative
On piano too sensative.
Shows interference.

#60 Voice & piano - sharper than above though still rather full. Better definition than #57.

#57 (Tightened) Less sensative than before. Little sharper than before. Voice & piano good.

Neither of these recording are good. Both seem tubby: lack definition & clearness. Both are full.

GW

Voice Test Miss Ingrey
"Drink to Me Only With Thine Eyes".
#57 - Too full - barrelly. Lacks definition.
#60 - Not quite as full or as loud as 57 better definition but still not good

Same Singing "Bonny Dundee"
#60 Lacks Definition - sounds barrelly
#57 - Little louder & little better definition than #60.

Piano with 2 #7 horns.
#57 - Sharp - tin panny - plunky.
#60 - Not as loud as 57 little better quality tho' sharp.

Same with long horn #2
#60 Softer. more natural - fuller. better than before
#57 - Louder than 60 - clearer cleaner - full - fair quality

Same - Mood played
Presto March very loud. Loud Pedal
Both Rotten - bad interference.

Same #7 horn, raised &
further back from piano.
Both still interfere. Rotten

Tried again horn still higher
and further back.
Better than before but still
has interference.

6/9/15

3 minute Recorders

Piano test Mrs. Imgrey playing Presto March, loud Pluck Turnbout pedal.

#56 - Notes clear & distinct. Much better than before.

Same with piano closer

#56 - Holds well. Stands out. Natural. Fine

#74 - Sharper than #56

Same playing Moszkowski Serenade.

#74 - Standard - Clear - sharp

#44 Fuller. Louder. Stands out - lounges a little.

#59 - Little more fine than before but lounges on loud notes. Excellent surface

#61 Fuller - louder. more natural - sweet - holds well.

#56 - Little sharper than #61

not quite as loud but hoeds well & natural. Clear, Clean distinct.

Same Record Moonlight Sonata
#7 Horn. Close up. Idewood on strings
#61 - Fair pedal. Natural Tone. Little fringy.

Voice Test - 2 minute.
"When the Cometh." Miss S.

#61 - Full, true, natural, loud hoeds.
#56 Not quite as loud as 61. Little sharper. Does not stand out as well. Good or better than Standard however.
#44 Sharper than #56 - Loud but sounds on edge & liable to go to pieces.

#59 - Weaker than preceding. Does not hold. Rattles.
#74 - Standard. Sharper than #61. Does not hold as well.

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4 minute test
Same Conditions
#60 - Not as clear & distinct as 74-56-61 but better than previous 4 minute tests.
#57 - Slightly louder & fuller than #60 but not good as 3 minute recorders.

6/10/15.

Packing & testing Kineto-phone Subjects in Gas House - trying out in office and storing in vault.

6/11/15

Tried out Kinulophone subjects in Office Building with Lawson in morning.

Inactive in afternoon.
Tried out #5 & 60 - new Hammitt recordings. These are loud enough & had some high back definition & clearness

Tried recorder #61. Head wind first two times & began to show paules on third time. Afternoon very hot & possibly overload stretched.

Tried new interpulation giving soprano & baritone more time when singing both notes.

#51 - Trifle sharper than 57 & 60. Good and Solid. Stands out. Clean. Not quite as loud as 57 & 60.

#57 - Tinkley & more barrelly. Does not hold as well. Very full & organ character sound. Little rattley on piano

#60 - Tinl - barrelly, does not hold. Louder than 51. Holds piano better than #57.

6/12/15.

Taylor completed model of self starter for Kinetophone in Office Bldg.

Got 3 more .008" sapphires from Werner.

Miss Imgrud reports that of the Victor records of Quartette from Rigoletto, the Sunset Label

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Made up 1 min recorder #51 & tested with #57 & 60 as per opposite page.

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(1) Little sharper than 57 or 60 - not quite as loud. Halfway better or no cleaner or fermer.

6/12/15:

#51 - Brass Head, Domed Top. 1 1/2" diameter. Knife edge pattern

Diaphragm of cellulord (Roll film with emulsion removed) .0027".

(1) Cork Cone 1" x 1/8" waxed on inside of diaphragm. Regular sapphire and arm.

(1) Sharp. clear-clean - hado fine. not loud enough

(2) Not quite so sharp, little louder, hado fine. Good for special record for very heavy piano x. blasty voice

6/14/15 4-min,

#54- Brass Head. Domed Top. 1¼" diameter. - Knife edge pattern

Diaphragm of celluloid (Roll film with emulsion removed) .0028"

(1) Cork Cone 1x1⅛" heavily waxed on inside of diaphragm. Regular Sapphire and arm. .008"

(2) Same but with another cork cone. Stretched very ~~tight~~ with heat.

① Quality seems fuel, good
natural - sounds little
hurried and not loud.

6/14/15: 4 min

#59 - Brass Head - Domed Cap.
1/7" diameter. Knife Edge
pattern.

Diaphragm of acetyl
cellulose from solution
1 part $C_2H_2Cl_4$ + 2 parts
$CHCl_3$ - .003"

① Cork Cone to fit, waxed on
inside. Regular arm
.008" sapphire

6/14/15

(59) Weak - full, natural, some surface. Holds everything

(54) - Stands out better - little sharper fine surface. Holds everything. Piano.

(57) - Much louder - full. Piano fine. Very loud & full

(60) - Not quite as loud - full but little fringe. Interferes with piano.

(51) - Not as loud as 57 or 60. slight fringe from whistle

Recorder #57 - shows interference with quartette particularly piano.
Recorder #54 - sharper but does not show interference not as loud as 57 but clear & distinct.

After listening to piano & quartette through recording horn there is no wonder that recorders show interference.

6/15/15.

Tested out samples made from recorders yesterday and find:

x #59 - Weak, back in horn.
#54 - Clearer and stands out better
#57 - Fuller, much louder. Will do perhaps for solo work.
x #60 - Quality fairly close to #57 but does not hold so well.
#51 - Not quite as loud as #57 but holds well. Give another try out.
x Buried these over.

Took record of quartette made on #54 recorder over to Studio to compare with their standard for loudness. It is weak and somewhat sharp. Not good enough in quality.

6/16/15.

Tested out last available reels & records for Kinetophone subjects.

Saw about getting ready for piano record of Mr. Herbert Fryer

c/o C.H. Halland Esq.
567 West End Ave
New York

Schuyler 5337.

Made these records which turned out good. Learned the following:-

① He recommends Mason & Hamlin upright piano as being one of the best in America on account of heavy padding of the keys.

② For recording, a piano should be played as an organ is, each notes held down as long as it should sound and not released

until the next one is to be struck. The staccato or pounding of hands up in the air touch should be avoided.

The pedals should be very carefully used - should be heel touch only during the striking of one chord or harmony and should be released to damp this out when the next one is struck to avoid interference and after ring.

Expression may be given with the finger touch as well as with the whole arm, open damper method and such expression is the more intense in its repression.

Visited out Storage Gallery Search Light with Hutchison at night.

6/17/15.

Went with C. Hayes to Halpin's department to test new type horns on phonographs.

Made piano record of Mr. Hoffman brought over by _____

Turned up cork cones for new recorders.

Made up and tested out recorder #58. First test showed back in horn & not entirely clean. Tore down & squeezed wax from between diaphragm & cork cone to lighten up.

Made over 6/19/15.

① First test showed nicked needle.

② Preliminary test holds note on piano. Triple sharp.

6/17/15 4 min.

#58 Brass Head - Domed Top
Knife Edge Pattern - 1¼" diam.

Made over 6/19/15

Diaphragm of celluloid (old roll film with emulsion removed) .003" thick.

① Cork cone 1" x ⅛" turned to fit dome, waxed on inside of diaphragm. Regular arm .008" sapphire.

6/18/15

Made our recorder #60

Geo Perner & Burt, hearing trials of #74 & 61 recorders said 61 fuller & more natural.

Found recorder #58 too weak. Trouble was that the inside cork cone was too thick and was touching the head.

Made preliminary tests on 4 minute recorders made up as follows

#60 - Fairly full. Holds well. Clear, clear, fairly loud.

#59 - Not as loud as #60. Holds well. A little sharper & cleaner.

#57 - Very loud and full. Does not hold as well as others on voice. Good on piano.

#51 - Pebbly - too full on voice. Good on piano.

CS73

① Preliminary test with piano seems to be good. Fairly loud and natural.

6/18/15. 4 min.

#60 Brass Head. Domed Top. 1¼" diameter - Knife edge pattern.

Diaphragm of acetyl cellulose from solution 2 parts $CHCl_3$ + 1 part $C_2H_2Cl_4$ - .003".

① Cork Cone, turned to fit dome, waxed on inside, 1" x ⅛". Regular arm. .008" sapphire

6/18/15.

Mrs. & Miss Millbourn came in afternoon.

Had to get Mrs. W. down to earth to begin work and will probably have to continue this for several sessions.

With Mrs. W. singing "Annie Laurie", made following tests:

#51 - Hollow. Too full. Rattly. Piano fine.

#57 - Sharper - cleaner - stands out better - Holds better. Piano good.

#59 - Weaker - Back in horn - Holds -

#60 - Stands out better than #59 - Clean full - not as loud as #57.

Same - closer and louder voice —

#60 - Holds well. Stands out fair

#59 - Slightly louder - Thinner - Holds O.K.

#57 - Very loud & sensative. Rather harshly.

#51 - Very loud. Blasts. Very full.

#57. Stretched tighter - Thinner than before but holds better.

6/18/15.

Duet - Jumata. Mrs & Moon.

#57 - Rather loud & dull. Shows slight interferences.

#60 - Holds better. Triple thinner. Stands out as well.

#59 - Thinner. Not as loud. Holds.

#51 - Big, fuzz, louder than alone, holds fine.

Duet Louder "Old Kentucky Home".

#51 - Good & load & true on singing. Sounds barrely on speaking.

#57 - Stands out well. Cleaner & thinner than #51.

#59. Stands out well. Clean, clear, triple thin.

#60 - Fuller than #59. Stands out well Holds well

#54 - Stands out better than 60 - rattled little on high soprano tones.

#60 Fuller than 54 but not as loud & does not stand out as well.

6/18/12 -

Piano Test

#60 - Fairly full but does not ring
#57 - Fuller than #60. Rings longer.
#54 - Softer than 57 - Full - slightly plunky.
#59 - Shows percussion. Plunky -
#51 - Full, round, loud on piano. Barrelly on voice.

(1) Preliminary test - sounds good. Vell - stands out - Clear - Reeds.

6/19/15

#58 - Brass Head - Domed Top. Knife Edge pattern - 1¼" diameter.

Diaphragm of celluloid (Red-Seal film) .003"

Cork Cone 1" x ⅛", waxed on inside of diaphragm. (Pointed Cone).

(1) Regular arm, .008" sapphire.

6/19/15.

Made over & tested oct powder #58.

6/21/15

Write up report.

Raw Kinetophone Shoot for Opening of the Arkansas and Pacific

With Mrs Wellbourn.
"Fuller than 60. Stands out a little better. Clear. Holds well.
With Mrs. W. again after very full records:
"Sharp on speaking voice & piano. Singing voice sharper than 57 but holds well and stands out".
With Miss W.
"Clear, clear, stands out". "Sharper than 51 or 57 but not unpleasant"
Duet Mrs & Miss W.
"Fuller than 60 - More natural - Holds well - No interference.
Mrs. W. (6/24/14).
"Thinner & does not stand out as well as 57."
Mr. Gilbert - Baritone
"Not as clear as 58 on voice. Triffle fuller. Piano better".
Miss W. (8")
"Clear - Clear - Stands out" Sharper than 51 or 57 but ~~not~~ unpleasant"
Duet Mrs & Miss W
"Fuller than 60 - More natural - Holds well - No interference.

6/22/15

#59. Brass Head - Domed Top. Knife Edge Pattern - 1¼" diameter.

Diaphragm of Cellulose acetate from solution, 2 parts $CHCl_3$ + 1 part $C_2H_2Cl_4$, .003"

Cork cone made to fit dome 1" + 1/8", waxed on inside of diaphragm. Regular arm .008" sapphire.

#57

With Mrs. N -
"Very full & loud - barely - oo's. Enunciation good. Piano good & full.
"Very full & natural on speaking voice. Piano very full & natural. Singing voice full, round, natural."
With Miss N.
"Very full & natural - clear - more natural than the thinner recorders."
Duet - Mrs & Miss N
"Fullest & loudest. Brings out distant piano much louder while not increasing the voices very much."
Mrs N. - Aria Samson & Dalila.
"Full - shows some interference. Little rattley."
With Mr. Gulbert
"Very full - Natural - Needs a 1/4 This recorder will be good for soft, low voices."

6/27/15

#57 - Brass Head - Domed Top
Knife Edge Pattern - 1 1/4" diam.

Diaphragm of celluloid contrale (old rode film) .003"

Cork cone made to fit dome 1" x 1/8" waxed on inside of diaphragm. Regular arm, .008" sapphire

6/22/15

Saw Riley about instructing new men.
Ran Kinetophone show for Secy. Daniels
sons for M.K.A.
Made our recorders #'s 57 and 59
Received new .008" sapphires from Simpson.
Mrs. & Miss Millbourn came and
made records, using recorders 57-57-
58-59-60.

(1) In the course of this recording,
noted the following:
With a fairly insensitive recorder,
the voice may be used closer
up. This recorder then appears to
stand out well and even though
otherwise sharp becomes more full
with the close up voice.

(2) In comparing sensitive with
insensitive recorders, using voice
close up accompanied by piano
more distant the loudness of
the distant piano varied a
great deal more than the close
voice — that is the more
sensitive recorder was more

easily detected by the distant piano than by the close up voice.

(3) Sharp recorders seem to bring out such overtones as make the voice sound an octave higher than so really sung. Full recorders seem to bring out overtones which make the voice sound low in pitch.

(4) – note further –
With Mrs & Miss Millbourn, first tested proper distance of recording them. This seemed 12" for Mrs & 8" for Miss M.

With Mrs M. at 12" tested following
#60 - Sharp on speaking voice. Trifle thin. Holds well. Does not stand out as it should
#59 - Fuller than #60. Stands out a little better, Clean. Holds well.
#58 - Fuller than either of the above. Louder - Stands out better.
#57 - Full as 58 - stands out but does not hold as well. Shows heavily 00s.

#51 - Very full & loud - barrely - oo's
Enunciation good. Piano good
full.

Mrs Millbourn - Ave Maria
12"

#51 - Very full & natural on speaking voice
Piano very full & natural
Singing voice full, round & natural.

#57 - Louder. Stands out better, rifle
sharper. Piano little plunky.
Holds well.

#58 - Further back than #57. Trifle thin
sweet. Represses heavy notes.

#59 - Sharp on speaking voice & piano
Singing voice sharper than #57
but holds well & stands out

#60 - Shows o's. Trifle sharp. Clean
Stands out. Holds well.

Miss Millbourn.
Last Rose of Summer at 8".

*#51 - Full - Loud - Slight rattles on
ascending notes. Full & natural.
Subsequently proned voice &
not recorder caused the rattles.
[8/3]

#57 - Almost as full as 51. Holds better - Clear - Clear.

#58 - Sharper - thinner but sounds natural for Miss W. - Holds well.

#59 - Clear - Clear - Stands out - Sharper than 51 or 57 but not unpleasant.

#60 Fuller than #59 - Almost as loud - Natural - Clear - Does not stand out quite as well.

*#57 - (again) - Very full - natural - Clear - more natural than the thinner recorders.

*(1) These tests show that it is difficult to differentiate between voice troubles and diaphragm troubles - that a raggy voice, which ~~is~~ even tho' so slight as not to be heard - may show up as a raule on phonograph -

Duet - "Ave Maria" - Mrs & Miss N.

#60 - Sharp - clear - not very loud - no interference.

#59 - Fuller than 60 - More natural tones - no interference.

#58 - Full, but back. Slight patter. Louder than #59.

#57 - Fuller than #58 more sensative - more natural generally better.

#51 - Fullest & loudest - Brings out piano much louder while not increasing voices very much.

6/28/15.

With Taylor on Chronograph.
Set up new .008" needles in aluminum arms.

Had Mr. Gillett to teach Diamond-Disc Demonstrating all afternoon. Made records with him with Speaders 57-58-59.

C873

- 6/24/14 -

With Halpin on testing wax for 8 and 4 minute recording.

With Mr. Gilbert - testing out recorders and getting him in trim to make records.

It is rather wonderful how a voice improves after a few phonograph trials probably for two reasons: because the sense of timidity, strangeness wears off and more confidence is obtained - because the singer sees their (his) defects and is on the qui-vive to correct them and does.

Gilbert remarked - that he never sang with as much voice before, as proof of what the phonograph had done for him.

Mrs & Miss Wilbourn came after lunch. Tested recorders

with Mrs. N. singing Aria from Samson & Dalila.

#51 - Full - shows some interference little patting.

#54 - Sharper & thin. Needs well heat not as loud. Clean.

#57 - Needs better - trifle sharper than 51. Stands out. Clean. Clear.

#58 - Not as loud. Does not stand out as well as #57. Good surface.

#59 - Trifle thinner. Does not stand out as well as #57

#60 - Sharper & thinner. Slight patte. Piano thin.

Geo. Werner came over. Changed to #4 (small horn). This proved very much fuller, curiously and makes voice stand out while diminishing the piano. Mrs. N. sang just low & close up. Changed to #7 horn. Mrs. N. sang louder & further away. made better records.

Wah Mr. Gilbert singing, ~~tested~~
Waxes for Halpin on home
recording.

#51 - Very fine. Natural. Holds O.K. This recorder will be good for soft low voice.

#57 - Good - natural - true - holds well - clean - clear. Little sharper than 51 but still soft & mellow.

#58 - Sharper - Stands out well - clear - clean.

#59 - Not as clean as #58 on voice - trifle fuller - piano better.

#60 - About as full as #59. Holds well. Piano does not show out as well. Record does not stand out as well as #57.

6/25/15
Built up recorder #59

This recorder is sharp & thin as compared with #57 and emphasizes what was noted that a full recorder does not seem particularly louder close up but does bring out more distant sounds louder - while a sharp recorder, while apparently as loud close up, is very much less loud for distant objects.

Mr. Gulert came for more instruction.

Suggest that since the Diamond Disc is put out as a musical instrument and will go before musical people, would it not be well for the demonstrators also the musical - it may be possible to get new leading the Boston Conservatory etc. at the same rate as our present Demonstrators

Gilbert came over & sang again. #57 recorder which we picked yesterday as best showed up too full with him & gave horn tones. Tried out others and decided on 59 as better. Then had him sing louder & from further distance when 59 became too sharp & 57 again best. Shows that fullness is inversely as distance from the horn.

Quartette came promptly after lunch. Began with arpeggios — soprano - alto - tenor - baritone. Of these the soprano only was good.

Made trials at Quartette from Rigoletto. Those made were not up to standard — no one seemed in humor for it. Tried Trio from Faust four times and showed improvement. Recording was apparently weak and did not stand out. Believe this due to this not being close enough to horn as a subsequent record by Miss Rensen stood out well.

This matter of placing before the horn is very important - the horn should be at the right height and the singer at the distance to get the best results. The recorder may otherwise be blamed incorrectly.

Record #57 showed little of interference & sensitiveness. Made other records with #57 which showed up cleaner & better.

6/25/15 - 1 min.

#58 - Bridge Head - Knife edge design - 1¼" diameter - flat top.

Diaphragm of acetate cellulose from solution 1 part $C_2H_2Cl_4$ 3 parts $CHCl_3$ - .0035.

① Aluminum disc 10/10 <.006
Regular arm - 008 "<.075"
Sapphire.

6/28/15

Note up report.

Meeting Phonograph Board Committee. Instructed to develop Amberola 30 Same Recording getting good recording not rush job out of it.

6/09/15

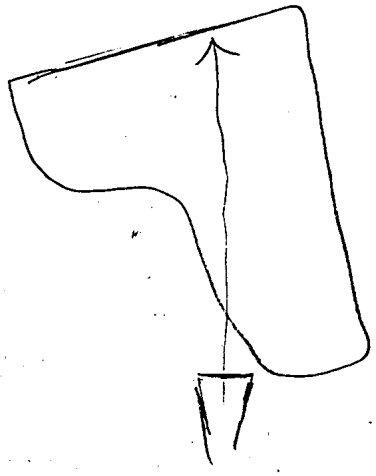
Made up 00" sapphires in arms.

Worked with Mrs. Imgrund on piano recording. Found that softer, plunging, pressure touch gave better records than percussive, touch.

Got best records with following arrangement:

Recorder #57

Horn #7 - 50" from floor
67" from music rack of piano



at night tested out record made of Mr. Gilbert. Very full & natural. Piano good but not loud & does not stand out as well as commercial records.

6/30/15.

Records of poor interpretation with Hayes.

Got whistle out of recorder #57. Tried piano record with it.

Tried out recorder #57 for piano record. Both these sound good.

Tried out home recording attachment made up by Holland for Amberola 30 machine. This cuts too deep due to too much weight on needle. Needle also has number of nicks in it.

Found also that recording was done with .013" sapphire & reproduced by .008" ball.

With Hayes judging machines

7/1/15

Teaching Disc Demonstrators.
all morning.

Mr. Edison brought in correspondence from Philadelphia concerning complaints by Blake & Burkhart.

Afternoon had Miss Cryce for reading. She has a fresh voice but limited lot of vocabulary & no especial quality.

At night went over records & correspondence about Philadelphia trip.

7/2/15

Teaching Dear Demonstrators all morning.
Got correspondence & records for Philadelphia trip.

Quartette came in afternoon. Could not at first get any records. everything blurred. Tried changing needle distance etc. At last lighted on records & make good record from recording standpoint but they did not sing well together. Damp afternoon. This evidently expanded diaphragm.

Made record Miss Alice Reusen & showed Mr. E. she said it was good.

7/3/15.

Morning Teaching Diamond
Disc Demonstrators.

Afternoon - Examination Diamond
Disc Demonstrators.

C1153

7/6/15

Taylor furnished up new recorder head which ~~stop~~ to secure same selling each time.

Got regards, reproducers etc to go to Philadelphia.

Meet to Philadelphia.

7/7/15

In Philadelphia.

7/8/15

Wrote up report & correspondence about Philadelphia trip.

Worked on home recording.

Mrs. & Miss Milbourn in afternoon.

Tested following recorders:

#54 - Good surface - Full - Smooth - Velvety.

#51 - Little apparent difference -

#57 not quite as loud as above

#58 Louder, fuller & better surface than #57.

#59 - not quite as loud as #58 but clear & distinct.

#60 - Back in harm. Not as loud or as the others. Clear & Distinct

7/9/15.

Worked with Taylor on home recording.

Made up special recorder #69. & tested out.

Tested out all recorders for quartette in afternoon. Found all recorders good. The clear dry day stretched the diaphragms.

Made records with #59 having Hayes about 2" - Miss Benson about 15" - Miss Tates about 12" & Applegate about 10" from horns. Balance seems pretty good. Records were louder and stood out better - clearer than any 4 min records previously made.

A peculiar thing about these 4 min recorders is there is no tendency to blast in them.

7/10/15.

Saw singer who will come Wednesday afternoon.

Saw Curtis about ~~teaching~~ supervisor

Saw Mr. Maxwell about ~~teaching~~ Boyd & Curtis.

Saw Mr. Edison about flabby ~~stretched~~ diaphragms.

Worked on Home reading with Taylor.

C1253

7/12/15.

With Halpin & Hayes, testing reproducers.

Set up to run picture for M.R.A.

Got out Mr. O-68th B'day film for M.R.A.

With Taylor and some Reporters.

✓ With Curtis (Superinten.) teaching Berliner & Edison systems of recording.

Mrs. & Miss Welbourn came. Had Mrs. W. sing as she pleased Samson & Dalila. She has never done it at all good her way or any other.

Rain Talking Pictures for Mr. Durand. Mrs. W. angry on return.

7/13/15.

Accumulating information for writing directions for adjustment of hight of reproducer on Diamond Disc Machines.

Visit Taylor on ~~former~~ reader for Amberola 30.

Writing report.

Arrainging reproducer so that arm is parallel with, above & below parallel with record in reply to Mr. Edison's note.
Found that some reproducers wasted more than others. That with the arm down the record is more inclined to blast, too sharper & quakier than when arm is parallel with record.

CRGJ

7/14/15.

With Taylor on Home Recording

Experimented with reproducer arm parallel, up and down & reported to Mr. Edison.

Made own Recorder #60 & tested out. Thin & weak. This recorder was made with diaphragm coated with vaseline to preserve from moisture & make permanent for all weather.

Experimented with Piano recording with Miss Dingmund. Experiment on one of Chopin's Scherzos proved conclusively that the softer, clinging stroke records much better than the quick, percussive stroke. On Chopin's Nocturne in Eb worked to improve Miss D's technique by evening up loudness of left & right hands.

[1]

① Sharp and not loud enough. Nice lady away to shriek.

7/14/15.

#60 – Hominite –
Brass Head – 1¼" diameter –
Domed Top – Knife edge pattern.

Diaphragm of old reel film stock celluloid .003"
Green thin coating of vaseline to protect from moisture.

① Cork cone, turned to fit dome, waxed on inside
Regular arm & foot – .008"
Sapphire.

7/14/15.
#62- (Made 7/9/15) - 4 min.

Brass head. Knife edge pattern - Domed Tap - 1 1/4" diameter. Special taper from ferrule to opening.

Diaphragm of celuloid roll film stock - .003".

Cork cone 1" x 1/8" waxed to inside of diaphragm. Regular arm & foot .008" sapphire.

7/17/C.

~~Instructing~~ Ruley & King - patternmen from Edison Shop in Syracuse on Diamond Disc machine all day.

C1373

7/16/15.

On Home Recording with Amberola 30 machine.

Day damp & rained. Exposed records would not be good so got some calcium chloride absorption rolls & put them up in sealed tin can.

Worked on reproducer for Hayes. Gave it coat of vaseline to protect it against moisture or weather.

Invalids came in afternoon. Made several records. Some of them good. One ready to mould. Made solo records of Miss Rensen singing Massenet's Elegie. Made records of Pub from Faust. Machine went bad on these so this capable of being played. Made solo record of Miss Yates "Aria from Samson & Dalilah". Good.

7/17/15.

Worked on Home recording with Amberola 30.

Finished up with King & Dailey on instruction.

Cylinder reproducers for McPH.

Taylor on stringing horns more conveniently.

Wrote up Instructions for Setting height of reproducers on Diamond Disc Phonographs.

Wrote up report.

7/19/15.

Made our recorder #54 with vaselined diaphragm.

Worked with Taylor on Home recording on Amberola 30 machine.

Tested out the following recorders
#60 - Rather sharp - loud - holds well - plunky for piano.
#54 - fuller & more natural
#59 - fuller than 60 - little louder & more natural.
#62 - fuller & more natural than any of the above.
#57 - loud, full, natural, will make good piano records.
#51 - not quite as loud as #57 - natural & true however - sounds like 62.
#54 - sharper than 57 - holds well -

Ran kinetophone show for Mr. E.

Tested out voice Mr. Head & accompaniment.

also Topical inlets

7/20/15.

Made our #57 recorder.

Discovered Jobbers and Dealers convention with Mr. Maxwell and Mr. Ireton.

Worked with Taylor on Home Recording on Amberola 30 machines.

Mrs. Imquend came in afternoon. Tested out the following recorders:

#62 - Stands out well - clear - natural.

#60 - Fuller - Does not stand out quite as well. Rings.

#59 - Good & full. Not quite as loud as above.

#58 - Clear. Stands out well.

#57 - Sharper - not so good.

#54 - Loud. Stands out

#51 - Fullest of all but responds to Bb of piano

Miss Swarund played Tschaicowski's Chanson Triste -

① Regular #7 horn, regular distance. Sounds good, clear, clear, brilliant.

② Changed to 2 horns #7's. More muffled & indistinct, not so good - not so clear & brilliant.

③ Long horn #1 close up. Little bigger & fuller than small horn but not as clear & clean.

④ Long horn #1 back at regular distance. Big - fuller than (1) and cleaner than (3)

⑤ Piano 15 ft away - Long Horn #1. Little weak but fair.

⑥ Piano 15 ft away - Cinelophone Horn. Piano very good. Clear, round clear. Voices, both talking & singing very weak. Piano very natural.

#57- 7/~~30~~/15.

4 minute Recorder.

Brass Head - Domed Top
Knife edge pattern - 1¼" diam.

Diaphragm of celluloid (old roll film stock) .003".

Cork Cone 1" x 1/8" waxed to inside of diaphragm. Regular .008" Sapphire and arm.

Diaphragm coated inside and out with vaseline to prevent weather changes.

7/21/15

With Taylor on Home Recording for Amberola 30.

Tore down #51 Reason & relined with vaselined diaphragm.

Miss Imgrund came in afternoon. Tried piano recording experiments.

First with Grand piano one horn. Then upright piano & two horns. Made several trials to get balance. Tried records 62 & 57. #62 was crisper & clearer but #57 was fuller & more mellow & round. After a number of trials, obtained good result with #57. Then it began to rattle ~~& sound~~ never get it right again though #62 continues to make good records. Then went in music room & studied Quartette from Rigoletto with Miss J.

7/27/15.

Took down recorder #51, which failed yesterday and built anew.

Duley came in. Spent some time getting information of trip of his to Aeolian Co & Babson Bros & giving him information on comparisons between Victor & Edison records.

About Aeolian he states -

① That these people take occasion to knock Diamond Disc principally, stating that it is impossible to get records, that the diamond is simply a talking point, that the grooves of the vertical cut are more liable to be ironed out than in the lateral cut. Also that they are bringing out a new and harder needle to play 50 times and another which will play 5000 times.

About Babson Bros., he states that a Mr. Lenison (?) showed

him the Diamond Disc and that it blasted and Benevon(?) stated that almost all of the machines blasted and that he corrected it by bending the horn arm & limit pin because this was the quickest way.

Mr. Sordgreano came in afternoon. Tried records #51 with him. Was too feeble. Tried #62, seemed to be good.

He sang Coat Song from La Boheme and Bass Aria from The Magic Flute. Seemed to get good records. Sent them down to Neuth for masters and blue records.

Tried Miss Dugrand on Rondo Capriccioso, No #7 Karno, Upright Piano. Seemed fair but found best in last one.

7/28/15:

Made our Recorder #59 with vaselined diaphragm.

Judged horns for Halpin with Hayes.

Fixed up returned machines for Riley.

Fixed Loud Diamond Disc Reproducer for Constable.

Quartette came. Studied Victor and our Quartette from Rigoletto. Made 2 - not good enough for blue. Personalities in each. Made 2 Pro's from Faust. Not good. Hayes went to take Sundas to see new recording studio so used Mr. Yates as tenor.

Tested Permanent Loud Speaking Diamond Disc Reproducer.

C157J

7/24/15.

Experimenting with Constabee on Loud Diamond Disc Reproducers.

Got Reproducers & Tested out

#23094 - A23063 - A23022
18683 are softer - not as loud - fuller! trifle more muffled but so much % like as Hayes Standard.

A9046 & A23031 are trifle louder than above but quality not materially changed.

A23063 made up - Condensite (or Bakelite) on cord. Cone waxed to diaphragm.

Marked with Constabee on Condensite diaphragms -

18683

7/26/15.

Discussing condensite Disc Diaphragm

Mrs. Smith of Montgomery, Ala came for voice trial. Was not in good condition for trial. Voice rather weak & shaky.

Made up loud reproducer # 18683. Link with pieces inserted in. Seems best of lot. Took up to Rasco to test out. Developed slight rattle. Brought back and waxed top of link more firmly to cork & cone.

✓ Made up # 23094 as above. Quite louder & clearer than above.

Made up # 9046 as above. Quite louder than # 23094.

✓ Made up # 23022 with metal link. Sounds like # 9046.

C1617

7/27/15.

Tests of Lead Speaking Diamond Disc.
Reproducers shows:
Principal defect is that:
This may be overcome by
① Seeing that the clamping rings are tight.
② That the loops between link and the button ring & diamond lever are filled with wax so as to have a joint with no loose motion.
That the looseness may be right the shellacked cord must be straight. This may of course be insured by stretching the cord when applying the hot shellac.
A metal link does as well as the shellacked cord.

Tests seem to show that this reproducer if anything improves the quality of violin & some voice records - especially the violin as it gives it a more natural ring.

7/27/15

Wrote up report.

Made up recorder #62 with Condensite on Japanese paper diaphragm. This seems to be fine. The recorder has very natural quality, no squeaks or rattles - is full but not tubby.

Made up recorder #60 as above & tested out

Began Recorder #58 as above

7/27/15

Preliminary test = this recorder seems very good. Voice natural, stands out, full, no squeaks or rattles or other noises.

7/27/15

#62 - 4 minute Recorder.
Brass Head, Domed Top.
Knife edge pattern, 1¼" diameter.

Diaphragm of Japanese Paper dipped in condensite transfer varnish & dried, .0035".
Cork Cone, 1" x 1/8", turned to correspond with dome, 1" x 1/8", wetted with alcohol and thus stuck to diaphragm.

Regular .008 sapphire & aluminum arm.

7/27/15

#60 Preliminary test - Little more full than #62 on previous page, very good surface, natural, no squeaks or rattles or other noises.

7/27/15

#60 - 4 minute recorder.
Brass head, domed top, knife edge pattern, 1¼" diam.

Diaphragm of japanese paper, impregnated with condensite transfer varnish, & dried .0025". Cork cone, 1" x 1/8", turned to fit dome, moistened with alcohol, then fastened to diaphragm.

Regular .008" sapphire with regular aluminum arm.

#62 - Syllables better than 60. Generally fuller & more natural. Piano good & full & round. Does not sound as big as #58.

#70 - Syllables pretty good. not as big or loud or full as 58 or 62. Piano little weak & thin as compared with 58 or 62.

7/28/15

Finished up recorder #58

Testing out recorders finished up as follows

51 - Very full & sensative, little rattley. Piano full

53 - Sharper & stands out better than 51 but rattles & makes piano sound plunky

#54 - Bigger & fuller than 51 - stands out better than #51 - Piano pretty good.

57 - not quite as big & loud as #54 particularly on voice. Piano pretty good.

#58 - Sounds the S's & syllables fine. Piano. big full & natural, best recorder so far.

59 - Triple sharper & does not hold as well as #58. Piano not as big & full & natural.

60 - not quite as big & full & round as 58 on voice & does not sound syllables so well. Good on piano.

[171]

7/28/15

#58 - 1 min recorder
Brass Head, domed top,
knife edge pattern, 1¼" diam.

Diaphragm of Japanese Paper
impregnated with condensate
transfer varnish & dried. .003"
Cork Cone 1" x 1/8", shaped to
fit dome, wetted with alcohol
& fastened to diaphragm.

Regular .008" sapphire with
regular aluminum arms.

#48 - Good, full & natural though not so big as #58.

7/28/15

#48 - 4 minute reader
Brass Head - Knife edge pattern 1¼" diameter.

Diaphragm of #1207 condensite varnish on japanese paper & airdried, .0038".

Disc of aluminum 7/8" x .006" fastened to outside of diaphragm by melting with alcohol.

Regular arm with .008" sapphire.

#44 - Good & full. Some surface. Not as good as #58.

7/28/15

#44 - 4 min recorder.
Brass Head - Knife edge pattern - 1¼" diameter.

Diaphragm of japanese paper impregnated with #1207 condensite varnish. .0037" thick.

Aluminum Disc 7/8" .008" fastened to outside of diaphragm by wetting with alcohol.

Regular arm with .008" sapphire.

7/28/15

Had Miss Alice Carey up in afternoon to sing and tested out the following recorders:

#59 - Used as standard.
#44 - Pronunciation - syllables much more distinct. Voice natural & true. Piano good.
#48 - Voice more natural than #44 - Best of lot in this respect. Piano little loud & inclined to interfere,
#60 - Makes voice sound trifle juvenile. Piano interferes - too sensative.
#62 - Fuller - sheds better than 60. No interference. Piano natural.
#58 - Stands out well. Loud, natural. Piano good - Ranks with #48.

These recorders, made from Japanese paper impregnated with condensite varnish which does not get hard

and elastic, are the best
reeds I have yet made.
The voice & piano are more
natural than with any other
reeds yet made.

Below this to the end is the
absolutely "dead" — or without
spring nature of the material
so that it responds readily
to any sound waves and
does not add to these any
vibration of its own.

7/29/15.

Found a buzz in #68 recorder of yesterday and in attempt to correct centrifugal diaphragm and had to build over.

#60 Recorder of yesterday was not good so built over.

Had Mr. Head & Mrs Mickle out in afternoon. Made piano & voice records with new recorders. Piano best with #58 & seemed to show up nicely. Necessary to hold voice back to about 15". Shows fair. These recorders are very much fuller than corresponding celluloid recorders but have very natural tone, very little surface and no tendency to squeak.

C185J

#60 – 7/29/15 4-minute recorder.

Brass head, domed top, knife edge pattern, 1 1/4" diameter.

Diaphragm of Japanese paper, impregnated with condensite transfer varnish #1207 and dried. .003".

Cork cone 1" x 1/8", turned to fit dome, moistened with alcohol and thus fastened to diaphragm

Regular arm with .008" sapphire.

7/29/15

#58 - 4 minute recorder.

Brass head, domed top, knife edge pattern, 1¼" diameter.

Diaphragm of Japanese paper impregnated with #1207 condensite transfer varnish & dried, .0023"

Cork cone 1" x 1/8" turned to fit dome, wetted with alcohol and then stuck to diaphragm.

Regular aluminum arm and .008" sapphire.

7/30/15.

On New York experimenting with loud speaking reproducer for park communication.

Determined that our new stiff arm reproducers are louder than ordinary but not loud enough for Park exhibition with noises around.

Had Taylor made up new reproducer outlined by MRA having top of dome filled with poldex & turned to fit pantomiss diaphragm

Night - Experimenting with Autofiscom Loud Speaking Telephone System. This is very loud but requires attention and adjustment.

7/31/15.

On orders of Mr. P.A., experimented further on band microphone system.

Experimented on Music Master Horn with Ditmars flat top mica diaphragm reproducer. This is louder and sharper than the regular reproducer.

Mr. Edison turned down the microphone system on account of lack of fullness, or quality.

8/2/15.
Started Taylor on Chas Edison's machine with MusicMaster Horn and Hutchisons loud speaking reproducer.

Made up record #53 as per next page and tested out.

8/2/15

#53 - 4 minute reader
Brass head, Knife edge pattern 1¼".

Diaphragm of Japanese paper impregnated with condensite #1207 transfer varnish and dried. .0025"

Aluminum disc 7/8" x .008" on outside

Regular arm x .008" sapphire.

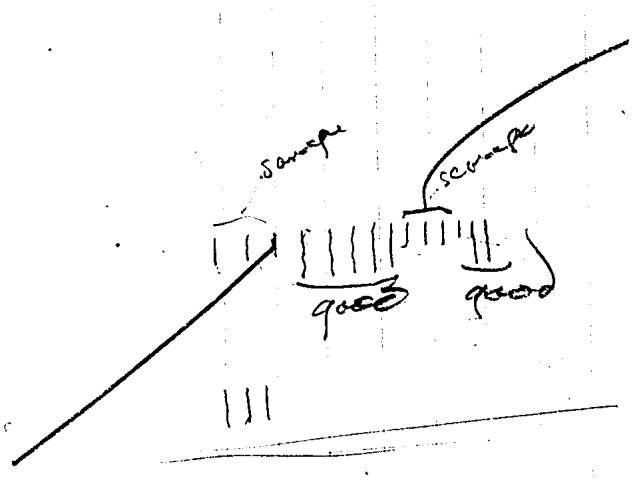
8/2/15

#55- 1 minute Reader.
Brass Head, Domed Top,
Knife edge Pattern, 1 1/4"
diameter.

Diaphragm of Japanese
Paper impregnated with
#1207 Condensite Transfer
Varnish .0032" Thick

Cork Cone 1" x 1/8 turned to
fit dome, wetted with CA glue
& thus stuck to diaphragm.

Regular aluminum arm,
.002" sapphire.

C197

[ITEM(S) FOUND IN BOOK]